

Application No.: 10/722,732

11

Docket No.: 559502000500

**REMARKS**

Claims 1-38 were pending in the present application. By virtue of this response, claims 3 and 14 have been amended. Accordingly, claims 1-38 are currently under consideration. Amendment and cancellation of certain claims is not to be construed as a dedication to the public of any of the subject matter of the claims as previously presented. No new matter has been added.

**Rejections under 35 U.S.C. § 112**

The Office has rejected claims 3 and 14 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In response, claims 3 and 14 have been amended to provide the antecedent basis for the term "said programming reference cell".

**Rejections under 35 U.S.C. § 102(e)**

The office has rejected claims 1, 6, 12, 16-17 and 35-36 under 35 U.S.C. § 102(e) as allegedly being anticipated by Hanzawa et al. (Pub. U.S. Patent No. 2004/0184331, hereinafter the Hanzawa reference). Applicant respectfully traverses these rejections.

Applicant submits that the Hanzawa reference does not disclose each and every element of the independent claim 1. First, it does not teach the use of reference cell (RC) that provides at least a reference resistor with a predetermined reference value (see Figures 1, 3, 4, 5, 6, 7, 8, 9, 11, 12, and 13). During the programming or erasing operation, the value of the variable resistor ( $R_m$ ) is compared to the value of a reference resistor to generate control signals to control the programming or erasing operations respectively (see Figures 3 and 11). In contrary, the Hanzawa reference discloses a memory device with only the variable resistor but not the reference resistor.

Second, the Hanzawa reference does not teach the element of "detecting variation in the electrical resistance at the time of programming operation". Although the Hanzawa reference anticipates the resistance of a memory cell may vary, it does not teach the means to detect such

pa-944765

Application No.: 10/722,732

12

Docket No.: 559502000500

variation at the time of programming operation. The reference cell containing one or more reference resistors is part of such means that provides this function according to the embodiments of the present invention.

Last but not least, the Hanzawa reference does not teach the element of "stopping the programming operation ... when the electrical resistance is varied to a predetermined reference value". Since the memory device disclosed by Hanzawa does not have the capability to compare the resistance of a memory cell to the resistance of a reference resistor with a predetermined reference value, therefore it does not perform the function of stopping the programming operation when the electrical resistance is varied to a predetermined reference value.

For the reasons presented above, it is respectfully submitted that the independent claim 1 and its dependent claims 2-11 are allowable over the Hanzawa reference. In addition, since the independent claims 12, 35, and 36 include similar limitations as the independent claim 1, these claims and the corresponding dependent claims 13-22 are also in condition for allowance.

Regarding claims 6, and 16-17, the Examiner stated in the Office Action that the Hanzawa reference discloses the variable resistive element is formed with an oxide of perovskite structure having manganese between electrodes. However, upon searching the Hanzawa reference, Applicant can not find this element. Instead, Hanzawa teaches a method to use Chalcogenide for forming the variable resistor (see Hanzawa, column 3, lines 4-7).

#### **Allowable Subject Matter**

Claims 2, 4-5, 7-11, 13, 15 and 18-22 are objected to as being dependent upon a rejected base claim. Based on the reasons presented above, the Hanzawa reference does not disclose each and every element of the independent claims 1 and 12, which the objected claims are depended from. Thus, Applicant respectfully submits that the objected claims are in condition for allowance.

pa-944765

Application No.: 10/722,732

13

Docket No.: 559502000500

**Allowed Claims**

The Examiner is thanked for allowing the claims 23-34 and 37-38.

pa-944765

Application No.: 10/722,732

14

Docket No.: 559502000500

**CONCLUSION**

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 559502000500. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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Respectfully submitted,

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pa-944765